



AVIATION MAINTENANCE SAFETY CONFERENCE

2003

Miniature/Micro- miniature 2M Program and Battery Safety



**AECS (AW) Todd Thompson
Code 125B
(757) 444-3520 X7275
Todd.Thompson@navy.mil**



AVIATION MAINTENANCE SAFETY CONFERENCE

2M Program

2003

- ★ Who's Who in 2M
- ★ References for 2M
- ★ Points for a successful 2M Program
- ★ 2M Manager
- ★ 2M Personnel Safety
- ★ 2M Repair Site Safety
- ★ WRA/SRA Safety

2M Program

Who's Who in 2M

CNO N43
2M MTR Resource Sponsor

NAVSEA 04M32
2M/MTR Program/ILS Manager

NSWC Crane
Code 6083

- 2M Equipment ISEA/TDA
- 2M Certifying Agent (CA)
- Training support activity
- Piece Parts Outfitting

FTSCLANT 4103
FTSCPAC 203
FTSCLANT/PAC DETs

-2M Inspectors/FSE

NAVICP-M
Mechanicsburg
Code 058

- 2M Piece Part Support
- 2M/MTR Equipment Support

Seven 2M/MTR
Training Commands

NUWC DET FEO
Norfolk
Code 201V

- MTR Equipment ISEA/TDA
- Gold Disk Development M
- 2M Piece Parts Allowance

2M Program

References for 2M

- ★ **OPNAVINST 4790. 2H Chap 23**
- ★ **CINCPACFLT/CINCLANTFLT 4790.3 Joint Fleet Maintenance Manual (JFMM), VOL 4. Chap 11**
- ★ **NA-01-23 Standard Maintenance Practices, Miniature/Micro-miniature (2M) Electronic Assembly Repair**
- ★ **NAVAIR 17-1-124**
- ★ **NAVAIR 17-15-99**
- ★ **NAVAIR 17-600-141-6-2**
- ★ **NAVAIR 17-600-193-6-2**

2M Program

Points For A Successful 2M Program

- ★ **Leadership and training is key to safety within the 2M Program**
- ★ **Command supporting the program**
- ★ **Active management from 2M Program Manager**
- ★ **Good housekeeping practices**



2M Program

2M Program Manager

- ★ **Repair Site certification**
 - ★ **NAVAIR 4790-PLN-001/2M Certification Plan**
 - ★ **Contact AMMT, 2M CA, FTSC 2M Field Service Engineer to recertify site every 18 months. May extend up to 24 months to facilitate scheduling**
Normally accomplished during TYCOM review
- ★ **2M technician personnel certification**
 - ★ **Contact 2M Technician Recertifier, Fleet Coordinator or 2M Instructor to**

2M Program

2M Program Manager

- ★ **Coordinate with 2M Recertifier**
 - ★ **Develop training for personnel, recertification, documentation, and 2M database entry**
 - Ensure adequate QA inspector expertise**
 - ★ **QARs/CDIs familiar with 2M specs, standards, and level of repair**
 - ★ **Be familiar and review Industrial Hygiene Survey and OPNAVINST 5100.19 series for specific hazards**

2M Program

2M Program Manager

- ★ **Ensure preventive maintenance program is effective**
 - ★ **PRC-2000-2M system, operation and maintenance NA 17-15-99**
 - ★ **PRC-2000-2M system MRCs**
 - ★ **NAVAIR 17-600-141-6-1/
Preoperational MRC**
 - ★ **NAVAIR 17-600-193-6-1/
NAVSEA MIP 6652/05
28/182 Day inspection**



2M Program

2M Personal Safety

- ★ **ESD Considerations**
 - ★ **De-energize equipment/correct ESD configuration**
- ★ **Tools, 2M Master Tool List**
 - ★ **(Scalpels, dental tools, rotary tools)**
- ★ **Hot Irons/Tools**
 - ★ **Operating temps between 100 and 900 deg.**
- ★ **COC ensure training of personnel**
 - ★ **2M Maintenance Practices NA 01-1A-23, Hazardous Materials Warning**

2M Program

2M Personal Safety

- ★ **Hazardous Materials**
 - ★ **Be familiar with HMWS and IH survey**
 - ★ **Alcohol - flammable/mildly toxic to eyes/skin - prevent buildup, eye protection**
 - ★ **Epoxy - corrosive to skin/chemical burns to eyes - skin and eye protection required**
 - ★ **Flux fumes - irritation to eyes/avoid breathing vapors, stay out of the fumes**
 - ★ **Lead solder - poison by inhalation/ingestion don't breath**

2M Program

2M Personal Safety



2M Program

2M Personal Safety

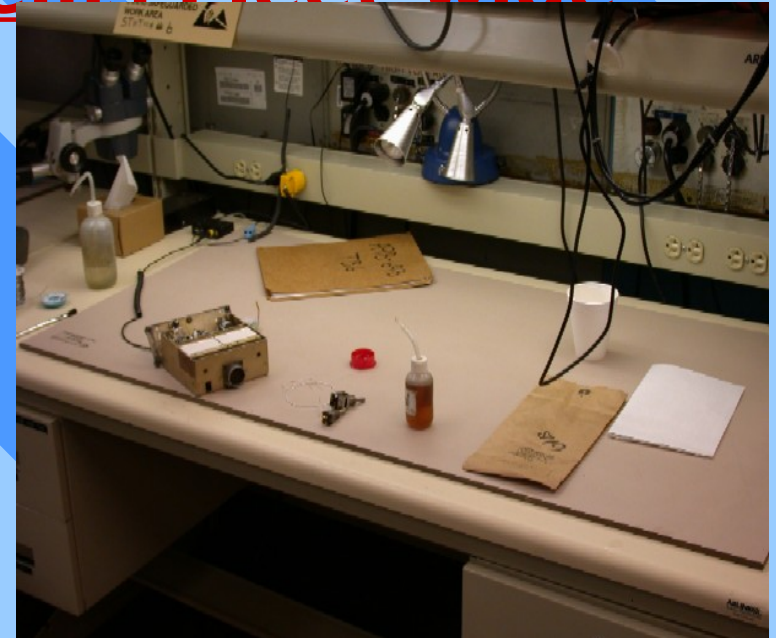
- ★ **COC is not requiring personnel to be familiar with the IH Survey**
- ★ **Recommend that the 2M repair work center and each 2M satellite W/C have a copy of command Industrial Hygiene(IH) Survey**
- ★ **IH Survey and OPNAVINST 5100.19 series require personnel to be trained in hazards associated within 2M program**

2M Program

2M Repair Site Safety

- ★ ESD considerations
- ★ Good house keeping habits/cleanliness of station!!

BIGGEST Problems Fleet-wide



2M Program

2M Repair Site Safety

- ★ **Proper PM of equipment/ESD mat**
 - ★ **PRC-2000-2M system MRCs**
 - ★ **NAVAIR 17-600-141-6-1/
Preoperational MRC**
 - ★ **NAVAIR 17-600-193-6-2/NAVSEA MIP
6652/05
28/182 Day inspection**

- ★ **Tools**
 - ★ **Control**
 - ★ **Fragile**
 - ★ **Hazardous**
 - ★ **Cleanliness/EOD**

2M Program

WRA/SRA Safety

- ★ **Handling of equipment of WRA/SRA**
 - ★ **Fragile/ damage/ ESD damage**
- ★ **Cleanliness**
 - ★ **Dust**
 - ★ **Contamination**
- ★ **Improper repair by unqualified personnel**
 - ★ **Cause more damage**
 - ★ **Solder defects**
 - ★ **Improper operation/NON-RFI**

2M Program

MCH-100A

- ★ **Malcon Hot Air Systems**
 - ★ **Safe**
 - ★ **Durable**
 - ★ **Portable**
 - ★ **Lightweight**
 - ★ **Battery powered, rechargeable**
- ★ **Works on most electrical wire repairs**
- ★ **Heat shrink**
- ★ **Most environments**

2M Program

MCH-100A

- ★ **Recommended for admission to NA 01-1A-505**
- ★ **More than 150 are in use throughout Fleet**
- ★ **NAVAIR is awaiting "Environmental Test"**
- ★ **No estimated date of test**



2M Program

MCH-100A

★ **E-mail from Bob Hubbard, NAVAIR IPT Leader, dated 10Apr03**

★ **"An "Explosive Environment Test" has been recently identified, and needs to be performed on the MCH-100-A, and evaluated prior to releasing an official message to IRAC the NA 01-1A-505 WP 012, and the COTS pub on the MCH-100-A, which would thereby provide the necessary authority to use the MCH-100-A on-aircraft under non fuel laden conditions (no open cells, lines, adjacent fuel spills, well ventilated,**

2M Program

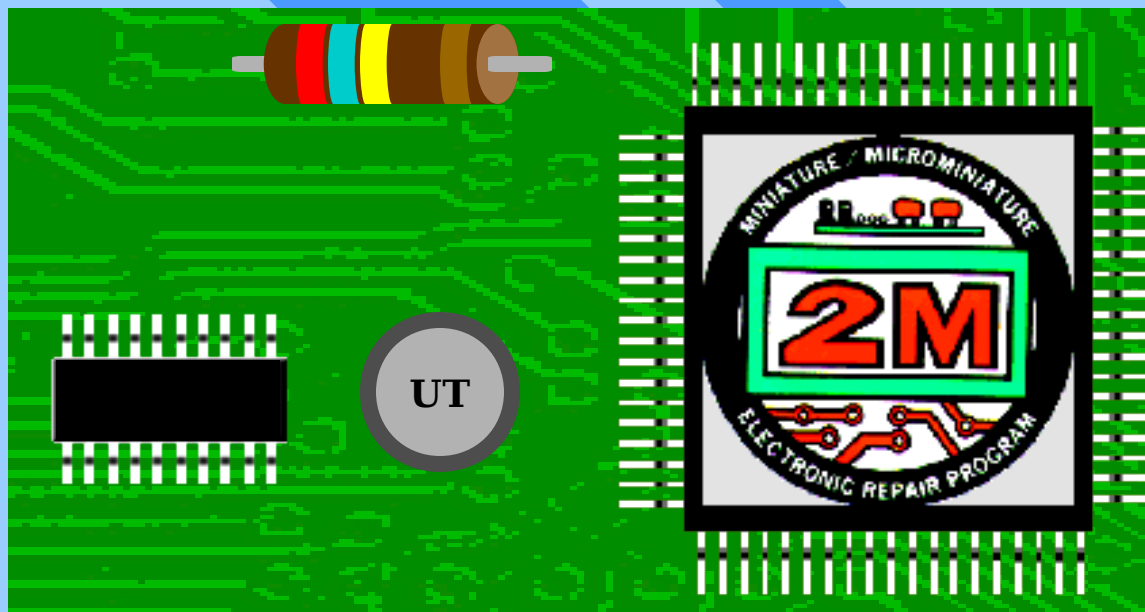
MCH-100A

- ★ **E-mail from Bob Hubbard, NAVAIR IPT Leader, dated 10Apr03**
 - ★ **...best estimate is that it will take until approx early May to get the testing process initiated. The test is anticipated to take approx one week.**
 - ★ **The evaluation and report process documenting the official results of the test, will take at least 3 weeks thereafter.**
 - ★ **Funds have been secured to pursue this test."**



AVIATION MAINTENANCE SAFETY CONFERENCE 2003

Questions?





AVIATION MAINTENANCE SAFETY CONFERENCE

2003

Battery Safety

**AECS (AW) Todd Thompson
Code 125B
(757) 444-3520 X7275
Todd.Thompson@navy.mil**



AVIATION MAINTENANCE SAFETY CONFERENCE

Battery Safety 2003

- ★ **References and recommended reading**
- ★ **Handling procedures**
- ★ **Nickel-Cadmium Batteries**

Battery Safety

References and Recommended Reading

- ★ **NA 17-15BAD-1 Naval Aircraft and Naval Aircraft Support Equipment Storage Batteries**
- ★ **NAVSEA S9310-AQ-SAF-010 Batteries, Lithium Safety Program Responsibilities and Procedures**
- ★ **OPNAVINST 5100.19D**
- ★ **Command Industrial Hygiene (IH) Survey**

Battery Safety

Handling Procedures

- ★ **Minimum 40 hours specialized Training**
 - ✓ **Finding required training, but don't find sufficient follow-on training to stay proficient**

- ★ **Approved Personal Protective Equipment**

Ref: NA 17-15BAD-1 Safety Summary, S.7m

 - ✓ **Normally find PPE in poor condition, not utilized or unapproved type**

Battery Safety

Handling Procedures

★ Neutralizing Agents

★ NiCad batteries Change 1, 1 June 2001

★ 1 quart (32 oz.) distilled white vinegar/1 gallon water

★ Lead Acid batteries

★ 6 ounces Sodium Bicarbonate/1 gallon water

✓ Don't know about contents of Change 1

✓ Activities don't have neutralizing agents

Battery Safety

Handling Procedures

- ★ **Shower/Eye wash units**
 - ★ **All units shall be easily accessible/unobstructed locations**
 - ★ **10 seconds/100 feet away**
- ★ **Remote/minimally manned areas**
 - ★ **Visual/Audible alarms interlocking (trip lanyard) with activation device of unit**
 - ★ **Two-man rule**
 - ★ **OPNAVINST 5100.19D pg B5-4**

Battery Safety

Handling Procedures

- ★ **Fire suppression**
 - ★ **Class “C” fire extinguisher**
 - ★ **Non-slip rubber matting in front of charging units**
 - ★ **Separation of rooms and tools**
 - ★ **Pink/Red and Blue**
 - ✓ **Fire extinguisher out of date**
 - ✓ **No non-slip rubber matting**
 - ✓ **Corrosion on tools**

Battery Safety

Nickel Cadmium Batteries

Recommend posting procedures for Thermal run-away in an area with an unobstructed view, and have personnel review them.

- ✓ Often find they are not posted or personnel do not know





AVIATION MAINTENANCE SAFETY CONFERENCE

2003

Questions?

**AECS (AW) Todd Thompson
Code 125B
(757) 444-3520 X7275
Todd.Thompson@navy.mil**